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File Code: 3420 **Date:** August 27, 2004
Route To:

Subject: Proposed White Pine Blister Rust Resistant Candidate Protection Project (sacramentord)

To: Forest Supervisor, Lincoln National Forest

The Sacramento RD is proposing an FY 2005 insect and disease prevention/suppression project that would thin the area containing our white pine blister rust resistant candidate trees in Bradford Canyon. The main objectives of this project would be to reduce fire hazard in these stands and increase cone production on the candidate trees.

This area is on the north side of Highway 244, approximately three miles north of Cloudcroft, and includes the site where blister rust was first detected on the Lincoln NF in 1990. The forest here is high elevation (8700 to 9000 ft.) mixed conifer, with a predominantly south to southeasterly aspect. Both white fir and Douglas-fir plant associations (habitat types) occur within the area, the latter probably more frequent. Southwestern white pines are common, but are often overtopped or in direct competition with Douglas-fir and other species.

Blister rust incidence is high to severe throughout the area. Most of the white pines here (and in much of the surrounding landscape) were already infected when the disease was initially detected, and considerable intensification has occurred since. (It appears that blister rust arrived in Bradford Canyon in the early 1970s, with a major expansion occurring about 1985.)

Following a visit by Forest Geneticist Bro Kinloch in 1995, 80 rust-free white pines of seed-bearing size were located and tagged within this 170+-acre area. Cone collections were made in 1997 and 2001 from a total of 31 of these trees, providing seed for testing at the Institute of Forest Genetics (IFG) in Placerville, CA. Seven of these trees have already tested positive for major gene resistance (MGR) to blister rust. A modest cone crop this year should allow for testing of ten to 12 additional candidates in Bradford Canyon. (Cones will also be collected this fall from several rust-free trees in Wills Canyon for testing at IFG.)

The District is planning to implement the thinning treatment under an embedded contract, removing trees of all size classes, both commercial (<24" dbh) and non-commercial. On-site mastication may be used to treat the smaller diameter material. Basal areas throughout the project area would be reduced from greater than 150 ft^2 to around 60-80 ft^2. Where feasible, all trees in direct competition with the resistant candidates would be removed. Other white pines that appear healthy or have only non-lethal infections would also be favored over other conifers.

Similar to other recent and ongoing thinning projects on the District, this project would increase the growth and vigor of the better trees (of all species) throughout the stand. Fuel loading (including ladder fuels) would be greatly reduced, lowering the potential for crown fire. In regard to our efforts to learn about and (potentially) utilize rust resistance, several additional benefits should accrue:

Presently, because of severe competition, many of the rust-resistant candidates have not produced a significant cone crop since 1995; treatment will almost certainly improve the likelihood of seed production, allowing testing of more of them. Thinning around the candidates will also make it much easier to visually monitor these trees on a regular basis, a critical aspect of our resistance work. Other types of resistance (besides MGR) may be better elucidated, and potential new virulent rust genotypes detected. Finally, increased cone production on resistant trees — both the already proven trees and the expected additional ones — will make it more feasible to begin development of a diverse seed bank for future outplanting of rust-resistant southwestern white pine. A small test plantation may be feasible within the next few years.

Prior to implementation of this thinning, it will be necessary to re-mark some of the original resistant candidates (some still have the old yellow marks) as well as mark a few recently selected candidates. Please contact us if we can provide additional assistance in the development of this project.

/s/ Debra Allen-Reid
DEBRA ALLEN-REID
New Mexico Zone Leader,
Forest Health

cc: Frank R Martinez, Detlev R Vogler, Leonard Lucero, Dennis Dwyer, Dennis M Watson, Brian W Geils, John Anhold, Mailroom R3 Lincoln